



Power Matters™

Microsemi System Products



Power over Ethernet (PoE) Systems

Network Time Servers



 **Microsemi**
Power Matters.™

Power over Ethernet (PoE) Solutions

Microsemi PoE systems enable delivery of up to 95 watts of reliable, scalable Power over Ethernet (PoE) to IP phones, IP cameras, WLAN access points, Zero Clients, and other Ethernet devices over standard Cat5 or better Ethernet cable. All Microsemi systems support 10/100/1000 data rates and are available in 1, 4, 6, 12, and 24-port increments, bringing flexibility and longevity to network upgrades. New to Microsemi's PoE lineup is a catalog of outdoor IP66-rated PoE midspans, hubs, and switches, enabling new power and data solutions for environmentally challenging deployments, as well as a new line of Industrial PoE products ideal for environments that need extended temperature range support and appropriate certifications.

More than just innovators of PoE solutions, Microsemi is a market leader in PoE technology and a major contributor to IEEE802.3af, IEEE802.3at, HDBaseT and the to be finalized IEEE802.3bt standards.

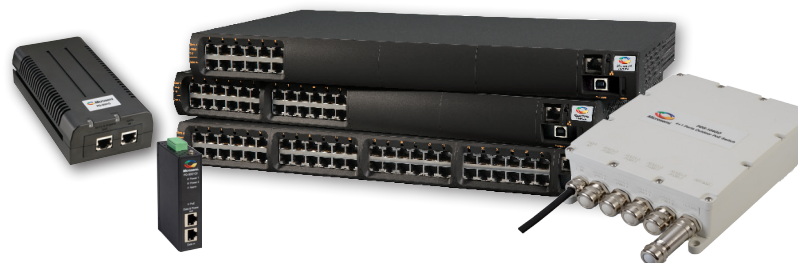
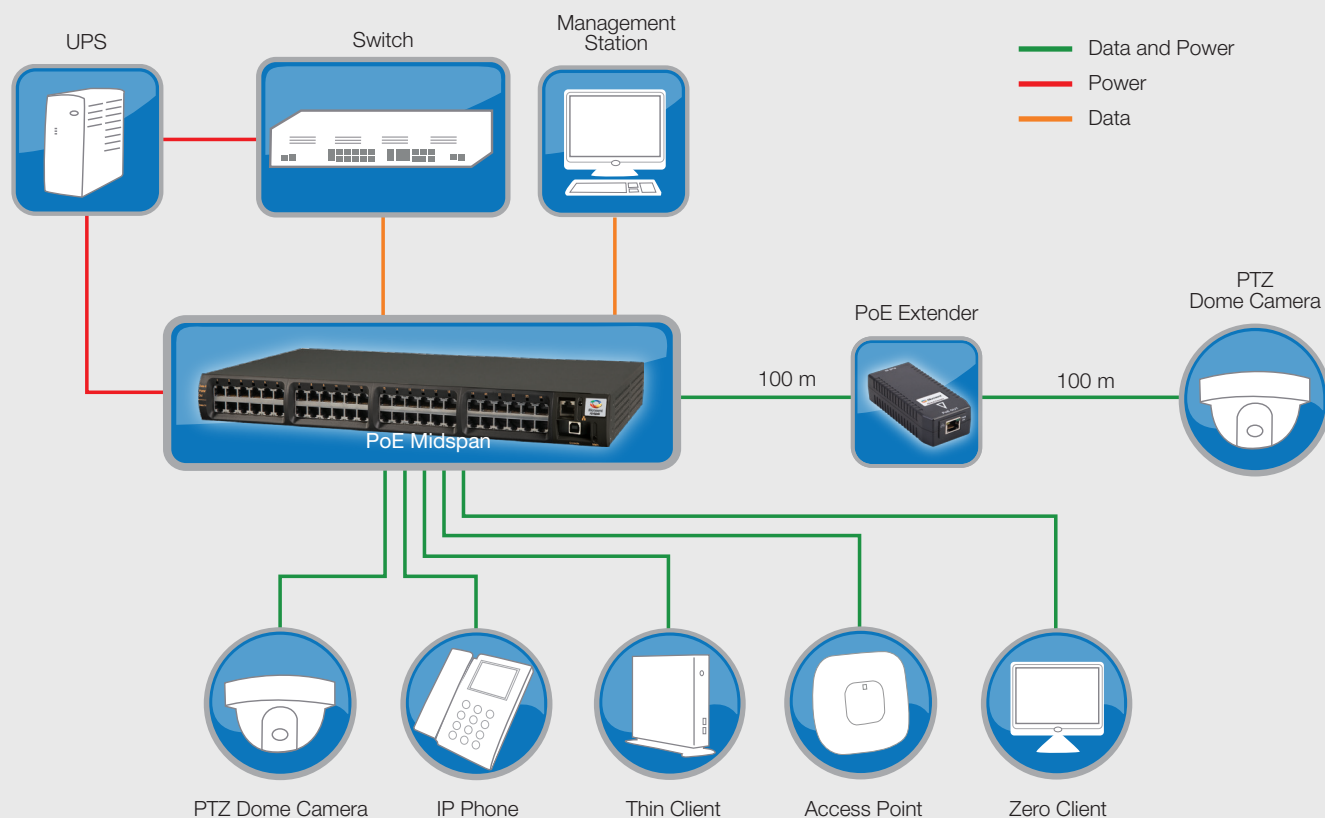


Figure 1: Microsemi PoE solutions include single and multi port midspans, hubs, switches, and accessories for indoor and outdoor activities



Single and Multiport Indoor PoE Midspans






Product	Description	Specifications
	PD-3501G Midspan This single-port midspan offers a solution for low port density IP terminal installations.	<ul style="list-style-type: none">• 1 port• Provides 15.4 W• IEEE802.3af compliant• Supports 10/100/1000 Mbps data rates
	PD-3504G Midspan This 4-port midspan offers a solution for IP terminals where available rack space is limited.	<ul style="list-style-type: none">• 4 ports• Provides 15.4 W per port• IEEE802.3af compliant• Supports 10/100/1000 Mbps data rates
	PD-6500G Midspan This remote management enabled midspan family provides 15.4 W to IP terminals, leaving network infrastructure completely unaltered.	<ul style="list-style-type: none">• 6/12/24 ports• Provides 15.4 W per port• Remote power management• IEEE802.3af compliant• Supports 10/100/1000 Mbps data rates
Product	Description	Specifications
	PD-9001GR Midspan This 30 W single-port midspan provides a high-power solution for remote powering of current and emerging high-power applications.	<ul style="list-style-type: none">• 1 port• Provides 30 W• IEEE802.3at compliant• Supports 10/100/1000 Mbps data rates
	PD-9004G Midspan This 4-port midspan offers a 30 W solution for emerging high-power devices.	<ul style="list-style-type: none">• 4 ports• Provides 30 W per port• Three units can fit in 1U 19" rack• IEEE802.3at compliant• Supports 10/100/1000 Mbps data rates
	PD-9000G Midspan Remote management enabled midspan family provides 30 W to IP terminals, leaving network infrastructure completely unaltered.	<ul style="list-style-type: none">• 6/12/24 ports• Provides up to 36 W per port• IEEE802.3at compliant• Midspan-midspan mutual backup• Remote power management• Supports 10/100/1000 Mbps data rates
Product	Description	Specifications
	PD-5501G Midspan This DC-powered single-port midspan provides a high-power solution for remote powering while dissipating 50% less power.	<ul style="list-style-type: none">• 1 port• Provides 30 W• IEEE802.3at compliant• 12-24 VDC• Supports 10/100/1000 Mbps data rates





Single and Multiport Indoor PoE Midspans (continued)

Product	Description	Specifications
	PD-5524G Midspan This high-power, remote management enabled Energy Efficient PoE (EPPoE) midspan is designed specifically to cut power dissipation over cables by 50% while powering end devices that require up to 30 W.	<ul style="list-style-type: none">• 24 ports• Provides 30 W per port• EEPoE technology – reduces power loss over cables by 50%• Midspan-midspan mutual backup• Remote power management• High power over 4-pairs• IEEE 802.3at compliant• AC and DC input• Supports 10/100/1000 Mbps data rates
Product	Description	Specifications
	PD-9501G Midspan 60 W, single-port, high-power midspan enables remote powering of current and emerging high-power applications.	<ul style="list-style-type: none">• 1 port• Provides 60 W• IEEE802.3at compliant• AC and DC models available• Energy efficient PoE (EEPoE) dissipates 50% less power when powering 25.5 W devices• Supports 10/100/1000 Mbps data rates
	PD-9500G Midspan High-power, remote management enabled EEPoE midspan family designed specifically to power IP terminals requiring up to 60 W.	<ul style="list-style-type: none">• 6/12/24 ports• Provides 72 W per port in Extended Power Mode• IEEE802.3at compliant• High power over four pairs• Remote power management• EEPoE technology – reduces power loss over cables by 50%• Midspan-midspan mutual backup• Supports 10/100/1000 Mbps data rates
Product	Description	Specifications
	PD-9601G Midspan Single port, Power over HDBaseT (PoH) midspan with 95 W across four pairs, featuring AC input and 10/100/1000Base-T.	<ul style="list-style-type: none">• 1 port• Up to 95 W of power over four pairs• PoH, IEEE802.3at, and 802.3af compliant• Plug-and-play installation• Guaranteed uptime• Supports 10/100/1000 Mbps data rates
	PD-9606G and PD-9612G Midspan 6-port and 12-port high-power midspans for emerging high-power end devices.	<ul style="list-style-type: none">• 6/12 ports• Provides 95 W per port over four pairs• PoH, IEEE802.3at, and 802.3af compliant• Managed• AC and DC input• Supports 10/100/1000 Mbps data rates

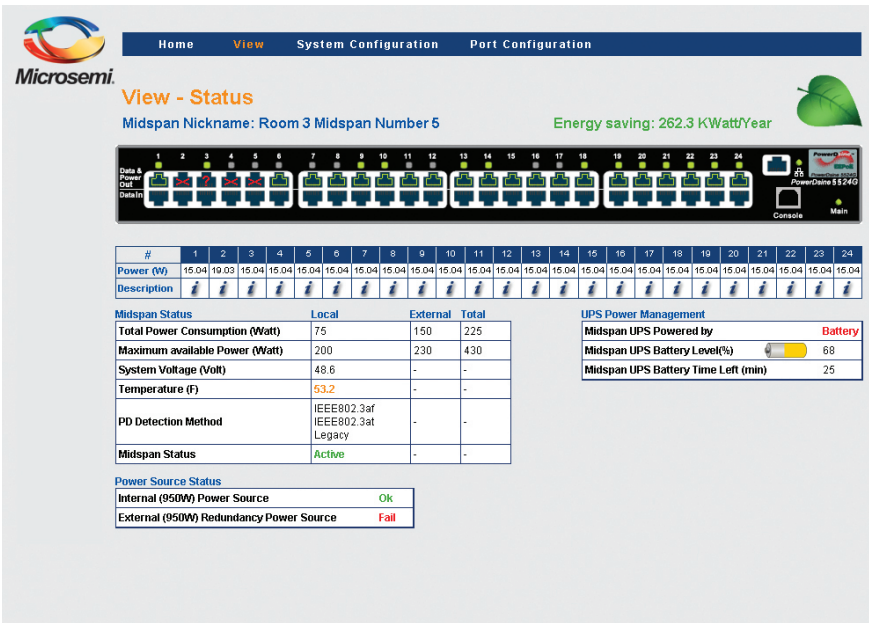
PoE Systems for Outdoor PoE Installations

Product	Description	Specifications
	PDS-104GO Switch The PDS-104GO is an outdoor PoE switch that enables the connection of four powered devices to the network (such as an outdoor WLAN, outdoor IP camera, and an outdoor P2P radio). The switch offers an SFP port for uplink in order to support optical interface or electrical interface and delivers PoE power up to 60 W per device.	<ul style="list-style-type: none"> • 5 ports (1 SFP data input, 4 PoE outputs) • Provides 60 W per port • IEEE802.3at compliant • Supports 10/100/1000 Mbps data rates • Outdoor rated: IP66 • Extended temperature range, -40°C to 50°C • Extends network reach by additional 100 m • Includes integral surge protection • Remotely managed (SNMP and web) • Plug-and-play installation
	PDS-102GO Switch The PDS-102GO is an outdoor PoE switch that enables remote monitoring and control of two outdoor devices, and includes remote reset while extending the reach between the switch and powered devices by an additional 100 m (up to 200 m maximum).	<ul style="list-style-type: none"> • 2-port outdoor PoE switch • Provides up to 30 W per device • IEEE802.3at compliant • Outdoor rated: IP66 • Remote power management • Integrated surge protection • Midspan-midspan mutual backup • Supports 10/100/1000 Mbps data rates
	PD-9001GO and PD-9501GO Midspan Single-port outdoor midspans that combine IP66-rated enclosure and surge protection for remote powering of outdoor devices such as security cameras and WLAN access points.	<ul style="list-style-type: none"> • PD-9001GO provides 30 W • PD-9501GO provides 60 W • Outdoor rated: IP66 • Extended temperature range <ul style="list-style-type: none"> PD-9001G: -40°C, 65°C PD-9501G: -40°C, 50°C • Fully IEEE802.3at compliant • Supports 802.3af and 802.3at devices • Includes critical surge protection • AC power input • Supports 10/100/1000 Mbps data rates
	PD-9002GHO Hub The PD-9002GHO offers plug-and-play installation for outdoor Ethernet-based devices and is well suited to power IP camera and WLAN APs together, where the camera passes up to 1G data wirelessly through the WLAN AP.	<ul style="list-style-type: none"> • 2-port PoE passive hub • 802.3at rated (30 W per port) • Outdoor rated: IP66 • 40°F to 131°F (-40°C to 55°C) operating temperature • Supports 10/100/1000 Mbps data rates
	PD-9001GI and PD-9501GI Midspan PD-9001GI and PD-9501GI are single-port midspan solutions with an extended temperature range and tolerance for shock and vibration. They are designed for industrial and outdoor applications.	<ul style="list-style-type: none"> • 1 port • Provides 30 W (PD-9001GI) • Provides 60 W (PD-9501GI) • Industrial rated IP30 • Extended temperature range, -40°C to 75°C • Plug-and-play installation • Supports 10/100/1000 Mbps • Shock IEC 60068-2-27 • Vibration IEC 60068-2-6 • Supports 10/100/1000 Mbps data rates





PoE Systems for Outdoor PoE Installations (continued)

Product	Description	Specifications
	<p>PD-9001G/SP Midspan</p> <p>PD-9001G/SP single port indoor mid-span protects outdoor installed devices with surge protection according to GR 1089.</p>	<ul style="list-style-type: none">• 1 port• Provides up to 40 W• IEEE802.3at-draft 4.2 compliant (with event 2 classification)• IEEE802.3af backward compatible• Surge protection according to GR 1089• Supports 10/100/1000 Mbps data rates
	<p>PD-OUT/SP11 Lightning Surge Protector</p> <p>Lightning surge protector is IP66 rated for outdoor installation and designed to protect Ethernet networks with outdoor mounted devices such as security cameras and WLAN access points.</p>	<ul style="list-style-type: none">• Outdoor PoE surge protection• Outdoor rated: IP66• Suitable for Ethernet• Supports data rates up to 1 Gbps• All eight lines protected

PowerView Pro SNMPv3 Cloud-based Power Management



PoE Accessories

Family	Product Number	Description
 <p>PoE Tester</p>	PD-AFAT-Tester	<p>The Power over Ethernet (PoE) Tester, connected to an RJ-45 outlet, tests the cabling infrastructure for the presence of power, either IEEE802.3af or IEEE802.3at (two pairs 30 W or four pairs 60 W).</p> <p>The PoE Tester also identifies the existence and type of Power Sourcing Equipment (either Endspan or Midspan) in the network.</p>
 <p>802.3af Active Splitter</p>	PD-AS-601/5	<ul style="list-style-type: none"> Power conversion from 48 V to 5 V output Two DC jacks: round 3.4 mm x 1.35 mm and 5.5 mm x 2.5 mm
 <p>PD-AS-951/12-24</p>	PD-AS-951/12-24	<ul style="list-style-type: none"> Power conversion from 48 V to 12 V or 24 V DC output (user selectable) Supports PoE up to 60 W For use with PD-9500G family
	PD-AS-951/18	<ul style="list-style-type: none"> Power conversion from 48 V to 18 V DC output Supports PoE up to 60 W For use with PD-9500G family
 <p>PoE Extender</p>	PD-PoE Extender	<ul style="list-style-type: none"> 1 port Extends PoE range by additional 100 m 802.af/802.at output power



PoE Selection Guide

Indoor PoE Midspan

Watts per Port	Product Number	Number of Ports	Remotely Managed	Gigabit	Input	Warranty	Other
15.4 W	PD-3501G/AC	1		x	AC	1-year	
15.4 W	PD-3504G/AC	4		x	AC	1-year	
15.4 W	PD-6506G/AC/M	6	x	x	AC	Limited lifetime	
15.4 W	PD-6512GAC/M	12	x	x	AC	Limited lifetime	
15.4 W	PD-6524G/AC/M/F	24	x	x	AC	Limited lifetime	400 W total power
30 W	PD-5501G/12-24VDC	1		x	DC	1-year	
30 W	PD-5524G/ACDC/M	24	x	x	AC & DC	Limited lifetime	450 W total power
30 W	PD-9001GR/AC	1		x	AC	1-year	
30 W	PD-9004G/AC	4		x	AC	1-year	
30 W	PD-9006G/ACDC/M	6	x	x	AC & DC	Limited lifetime	450 W total power
30 W	PD-9012G/ACDC/M	12	x	x	AC & DC	Limited lifetime	450 W total power
30 W	PD-9024G/ACDC/M/F	24	x	x	AC	Limited lifetime	1000 W total power
60 W	PD-9501G/AC	1		x	AC	1-year	
60 W	PD-9501G/24VDC	1		x	DC	1-year	
60 W	PD-9501G/48VDC	1		x	DC	1-year	
60 W	PD-9506G/ACDC/M	6	x	x	AC & DC	Limited lifetime	450 W total power
60 W	PD-9512G/ACDC/M	12	x	x	AC & DC	Limited lifetime	1000 W total power
60 W	PD-9524G/ACDC/M	24	x	x	AC & DC	Limited lifetime	1000 W total power
95 W	PD-9601G/AC	1		x	AC	1-year	
95 W	PD-9606G/ACDC/M	6	x	x	AC & DC	Limited lifetime	1000 W total power
95 W	PD-9612G/ACDC/M	12	x	x	AC & DC	Limited lifetime	1000 W total power

PoE Systems for Outdoor Installations

Watts per Port	Product Number	Number of Ports	Remotely Managed	Gigabit	Input	Warranty	Other
60 W	PDS-104GO/AC/M	5 (1 SFP data input, 4 PoE outputs)	x	x	AC	1-year	Lightning Protection for switch and other indoor network
30 W	PDS-102GO/AC/M	3 (1 data input, 2 PoE output)	x	x	AC	1-year	
30 W	PD-9001GO/AC	1		x	AC	1-year	Outdoor deployment
60 W	PD-9501GO/AC	1		x	DC	1-year	Outdoor deployment
60 W	PD-9501GO/12-24VDC	1		x	DC	1-year	Outdoor deployment
60 W	PD-9501GO/48VDC	1		x	DC	1-year	Outdoor deployment
30 W	PD-9002GHO/AC	2		x	AC	1-year	PoE hub - outdoor deployment
30 W	PD-9001GI/DC	1		x	DC	1-year	Industrial applications, Outdoor applications (extended temperature range support)
60 W	PD-9501GI/DC	1		x	DC	1-year	Industrial applications, Outdoor applications (extended temperature range and environmental support)
40 W	PD-9001G-40/SP/AC	1		x	AC	1-year	Indoor deployment

Network Time Servers

Next generation IT networks need accurate, reliable, and secure time. Microsemi's high-performance SyncServer® S600 is an enterprise-class GPS Network Time Server that supports the expanding technological requirements of large enterprises. Accurately synchronized clocks are critical for network log file accuracy, security, billing systems, electronic transactions, database integrity, VoIP, and many other essential applications.

The Microsemi SyncServer provides very reliable and secure network synchronization technology by combining multiport network interfaces with multiple time reference technologies and enhanced security protocols. Support for the essential security and network protocols provide easy management and seamless integration into your existing and future network.

An important advantage available with the Microsemi Network Time Servers is the option to use the Time Server with an atomic clock (such as a Rubidium oscillator). The Rubidium atomic clock has the ability to provide holdover when the GPS source is unavailable or compromised. Atomic clock quality holdover keeps the clock very accurate if the GPS signal is lost, allowing the network to stay accurately synchronized while the GPS issue is resolved. With the selection of the oscillator type—standard, OCXO, or Rubidium—within the time server, the user can specify how far to let the clock drift in terms of estimated time accuracy without impacting the performance of the network. When the user selects the Rubidium atomic clock, the SyncServer can holdover for weeks and still be accurate to less than one millisecond. This gives the IT staff plenty of time to correct the problem with no degradation or disruption in network time synchronization accuracy.

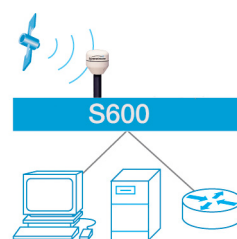


Figure 2: SyncServer S600

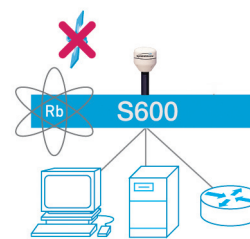
Key Benefits of Microsemi SyncServers

- Extremely accurate time source for network synchronization
- Synchronize thousands of client, server, and workstation clocks
- Very reliable and secure source of time for your network
- Security-hardened for peace-of-mind service operations
- Multiple Gbe NTP ports for easy network configuration and adaption
- Improve network log file accuracy to speed network fault diagnosis and forensics
- Very reliable and easy-to-use network time appliance for modern networks and business operations
- Intuitive web interface for easy control and maintenance

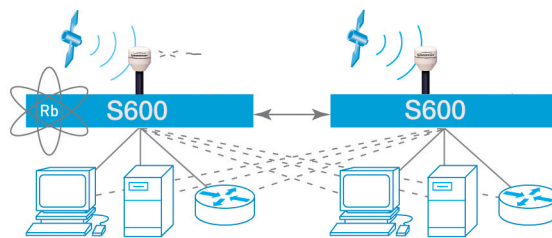
Examples of Network Timing Configurations



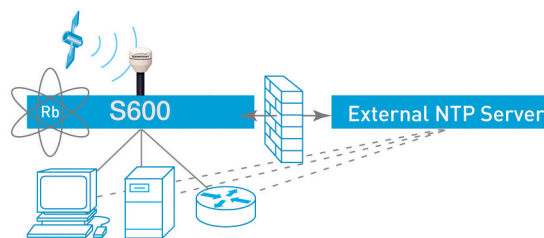
Basic configuration



Resilient configuration incorporating a Rubidium oscillator for improved holdover performance.



Redundant, resilient, and secure configuration incorporating a Rubidium oscillator in the primary server and peering to another server for backup redundancy.



Resilient internal configuration. However, accuracy and security risks exist when peering with an external time server through the firewall.

Network Time Server (SyncServer S600)

SyncServer S600

High Performance, Enhanced Security Network Time Server

- Ultra-high bandwidth NTP time server
- Stratum 1 Operation via GNSS satellites
- Four GbE ports standard, all with patented NTP hardware timestamping
- Built-in DoS detection and protection
- Security-Hardened NTP Reflector™ with firewall protection
- Web-based management with high-security cipher suite
- Exceptional time accuracy to UTC
- Extended environmental specifications
- TACACS+, RADIUS, LDAP, and more
- IPv6/IPv4 on all ports
- Rubidium Atomic Clock or OCXO oscillator upgrades
- Dual power supply option
- PTP and GLONASS ready, no additional hardware required



Figure 3: SyncServer S600 Rear View



Figure 4: SyncServer S600 Front View

SyncServer Options Upgrades and Antenna Accessories

Security Protocol License with NTP Reflector

The Security Protocol License includes the security-hardened NTP Reflector™ with hardware firewall functionality. The GbE line speed NTP Reflector™ with 100% hardware-based NTP packet processing can handle in excess of 120,000 NTP requests per second (mode 3 NTP client packets only). This same hardware also acts as a CPU-protecting firewall by bandwidth-limiting all non-NTP traffic. In addition to the reflector are denial-of-service (DoS) functions monitoring the packet flow. Abnormally high NTP or non-NTP traffic will initiate an SNMP trap. In a DoS attack, the S600 remains impervious to the level of network traffic that could be delivered as all packets are processed in hardware at line speed, though legitimate NTP client requests for time may be blocked elsewhere in the network due to the increased DoS flow.

Dual AC Power Supplies

The SyncServer S600 is equipped with a very high quality power supply. But the reality of modern electronics is that power supplies can fail and dual power supplies for critical applications can add an extra measure of redundancy for SyncServer uptime assurance. The dual AC power supplies provide hitless switching from one power supply to the other. The supplies are continuously monitored and an SNMP trap is sent in the event one of them fails. For extra level of assurance, the power cord(s) supplied with the SyncServers have locking rear IEC 60320 connectors to avoid accidental decoupling.

Windows Time Synchronization Software

Network time synchronization software is an essential part of distributing time to network clients. Domain Time II software for Windows is a comprehensive NTP software solution that simplifies network time synchronization. Versatile time clients and software servers keep the network hierarchy synchronized to the SyncServer. Easy-to-use management tools simplify and automate many tasks related to keeping the clients up to date. Monitoring functions track synchronization across the network to notify the administrator of any problems. The result is a reliable time synchronization system that requires little management overhead, and provides tremendous value to the integrity of network operations and applications.



Network Time Servers

Description	Ordering P/N
GPS Network Time Servers	
SyncServer S600 with Standard Oscillator, Single AC power supply. Note: Antenna Not Included	090-15200-601
SyncServer S600 with OCXO Oscillator, Single AC power supply. Note: Antenna Not Included	090-15200-602
SyncServer S600 with Rubidium Oscillator, Single AC power supply. Note: Antenna Not Included	090-15200-603
Software Option*	
Security Protocols License Option	920-15201-002
GPS Antenna Options	
Kit: 50 ft. total length: 50 ft. Cable; Antenna Kit	990-15202-050
Kit: 75 ft. total length: 50 ft. Cable; Lightning Arrestor; 25 ft. Cable; Antenna Kit	990-15202-075
Kit: 100 ft. total length: 100 ft. Cable; Antenna Kit	990-15202-100
Kit: 125 ft. total length: 100 ft. Cable; Lightning Arrestor; 25 ft. Cable; Antenna Kit	990-15202-125
Kit: 150 ft. total length: 150 ft. Cable; Antenna Kit	990-15202-150
Kit: 175 ft. total length: 150 ft. Cable; Lightning Arrestor; 25 ft. Cable; Antenna Kit	990-15202-175
Kit: 200 ft. total length: 200 ft. Cable; Antenna Kit	990-15202-200
Kit: 225 ft. total length: 200 ft. Cable; Lightning Arrestor; 25 ft. Cable; Antenna Kit	990-15202-225

* Software Options are linked to unit serial numbers and ship separately from the unit(s). Serial number must be provided for each option ordered.

GNSS Lightning Arrestor

Lightning does not have to strike the antenna to significantly damage the antenna or the GNSS receiver. Damage is often due to the effects of a lightning strike on a nearby structure, not a direct strike on the antenna itself. Since lightning strikes may induce damaging voltages in the antenna system when striking nearby objects, attempt to locate the antenna away from lightning rods, towers, and other structures that attract lightning. Also, locate the GNSS antenna lower than any nearby structures that are likely to attract a strike.



Technical Specification	
Type	DC Pass
Mount Type	Bulkhead Mount
PIM Rated	N
Standards	CE Compliant, RoHS Compliant
Connector	N
Surge Side Connector	Bi-Directional N
Protected Side Connector	Bi-Directional N
Frequency Range	dc to 5 GHz
Turn On Voltage	150 Vdc (spark over)
RF Power	25 W
VSWR	≤1.2 dB to 1
Insertion Loss	≤0.1 dB
Protocol/Application	Gas tube, DC pass RF coaxial protection for dc to 5 GHz

Note: The lightning arrestor also ships with 25 ft of either standard or low loss cable.



Microsemi is continually adding new products to its
industry-leading portfolio.

For the most recent updates to our product line and for detailed
information and specifications, please call, email, or visit our website:

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